

# CERTIFICATE OF CONFORMITY



- HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
- Certificate No:** FM21US0097
- Equipment:** Type 3730-3 series TROVIS HART Positioner  
**(Type Reference and Name)**
- Name of Listing Company:** Samson AG
- Address of Listing Company:** Weismuellerstrasse 3  
Postfach 101901  
Frankfurt D60314  
Germany
- The examination and test results are recorded in confidential report number:  
PR459607 dated 18<sup>th</sup> October 2022
- FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:  
FM Class 3600:2022, FM Class 3610:2021, FM Class 3611:2021, FM Class 3810:2021,  
ANSI/ISA 60079-0:2020, ANSI/UL 60079-11:2018, ANSI/UL 60079-31:2015, ANSI/ISA 61010-1:2012,  
ANSI/UL 121201:2019, ANSI/IEC 60529:2020, NEMA 250:2008
- If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

**Certificate issued by:**

*J.E. Marquardt*

J.E. Marquardt  
VP, Manager - Electrical Systems

18 January 2023

Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

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FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA  
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9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

Intrinsically Safe for Class I, II, III Division 1, Groups A, B, C, D, E, F, and G hazardous (classified) locations in accordance with drawing EB 8484-3, Intrinsically Safe for Class I, Zone 1, Group IIC hazardous (classified) locations in accordance with drawing EB 8484-3; Nonincendive for Class I, II, III Division 2, Groups A, B, C, D, F and G hazardous locations, indoors and outdoors (Type 4X, IP66) with an ambient temperature rating per the table in Section 12 below

11. The marking of the equipment shall include:

IS Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; T\* Ta\*

IS Class I, Zone 1, AEx ia IIC T\* Gb

NI Class I, II, III Division 2, Groups A, B, C, D, F, G; T\* Ta\*

Type 4X; IP66

For Entity and NIFW parameters – refer to document no. EB8484-3

T\* - See below

12. **Description of Equipment:**

**General** - The Type TROVIS 3730-3 HART Positioner is a single acting positioner for attachment to pneumatic control valves. The positioner ensures a predetermined assignment of the valve position (controlled variable x) to the input signal (reference variable w). It compares the input signal received from a control system to the travel or rotational angle of the control valve and issues a corresponding output signal pressure (output variable y) for the pneumatic actuator.

**Construction** - The Type TROVIS 3730-3 HART Positioner mainly consists of the electronics part and one pneumatic module. The parts are assembled in an enclosure made of aluminium die cast or stainless-steel die cast. The enclosure has a cover with a polymeric inspection window. As an alternative to the polymeric material the window can be made from aluminium. The enclosure has an ingress protection rating of Type 4X and IP66

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### Thermal Ratings:

The correlation between temperature class and permissible ambient temperature range  $T_a$  is shown in Table 2.

**Table 2:**

Temperature class	Permissible ambient temperature $T_a$
<b>T4</b>	$-40\text{ }^\circ\text{C} \leq T_a \leq +80\text{ }^\circ\text{C}$
<b>T6</b>	$-40\text{ }^\circ\text{C} \leq T_a \leq +55\text{ }^\circ\text{C}$

For operation with inductive limit switches used with  $I_{max}/I_i = 52\text{ mA}$  and  $P_i = 169\text{ mW}$ , the correlation between temperature class and permissible ambient temperature range is shown in Table 3.

**Table 3:**

Temperature class	Permissible ambient temperature $T_a$
<b>T4</b>	$-40\text{ }^\circ\text{C} \leq T_a \leq +70\text{ }^\circ\text{C}$
<b>T6</b>	$-40\text{ }^\circ\text{C} \leq T_a \leq +45\text{ }^\circ\text{C}$

### Electrical Ratings:

Circuit	Signal circuit	Position transmitter	Inductive limit switches	Software limit switches
<b>Circuit no.</b>	1	2	3 and 4	5 and 6
<b>Terminal no.</b>	+11 / -12	+31 / -32	+41 / -42 and +51 / -52	+45 / -46 and +55 / -56
<b><math>V_{max}</math> or <math>U_i</math></b>	28 V	28 V	16 V	16 V
<b><math>I_{max}</math> or <math>I_i</math></b>	115 mA	115 mA	25 mA or 52 mA	52 mA
<b><math>P_i</math></b>	1 W	1 W	64 mW or 169 mW	169 mW
<b><math>C_i</math></b>	16.3 nF	11.1 nF	71.1 nF	12.2 nF
<b><math>L_i</math></b>	negligible	negligible	100 $\mu\text{H}$	negligible
<b>Rated values</b>	$I_N = 4\text{ mA} \dots 20\text{ mA}$	$U_N = 24\text{ V DC}$	* $U_N = 8.2\text{ V}$ $R_i = 1\text{ k}\Omega$	* $U_N = 8.2\text{ V}$ $R_i = 1\text{ k}\Omega$
Circuit	External position sensor	Forced venting	Binary output (NAMUR)	Binary input (24 V DC)
<b>Circuit no.</b>	7	8	9	10
<b>Terminal no.</b>	V_REF / PISTE / GND	+81 / -82	+83 / -84	+87 / -88
<b><math>V_{max}</math> or <math>U_i</math></b>	4.8 V	28 V	16 V	28 V
<b><math>I_{max}</math> or <math>I_i</math></b>	64 mA	115 mA	52 mA	115 mA

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<b>P<sub>i</sub></b>	74 mW	1 W	169 mW	1 W
<b>C<sub>i</sub></b>		11.1 nF	12.2 nF	11.1 nF
<b>L<sub>i</sub></b>		Negligible	Negligible	Negligible
<b>Rated values</b>		U <sub>N</sub> = 24 V DC	* U <sub>N</sub> = 8.2 V R <sub>i</sub> = 1 kΩ	U <sub>N</sub> = 24 V DC

## **TROVIS 3730-3-1300efghijklmnopqrst**

- e = Slot A Options: 0, 1 or 2
- f = Slot B Options: 0, 1, 2 or 3
- g = Slot C Options: 0, 2, 3, 4 or 5
- h = Slot D Options: 0, 1, 2, 3, 4, 5 or 6
- i = reserved: not safety relevant
- j = reserved: not safety relevant
- k = Emergency shutdown: not safety relevant
- l = Electrical Connection: 0, 1 or 2
- m = reserved: not safety relevant
- n = Housing material: 0 or 1
- o = Cover: 1 or 2
- pq = Housing version: not safety relevant
- r = Additional Approval: not safety relevant
- s = Ship Approval: not safety relevant
- t = Permissible ambient temperature: not safety relevant

### 13. **Specific Conditions of Use:**

None

### 14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

### 15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

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## 16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
18 <sup>th</sup> October 2022	Original Issue.
18 <sup>th</sup> January 2023	<u>Supplement 1:</u> Report Reference: RR235223 dated 18 <sup>th</sup> January 2023. Description of the Change: Typos corrected in Section 12 (Description of Equipment)

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